



IN REPLY REFER TO:

United States Department of the Interior

OFFICE OF THE SECRETARY

Office of Environmental Policy and Compliance
Custom House, Room 244

200 Chestnut Street

Philadelphia, Pennsylvania 19106-2904

July 20, 2000

Mr. Joseph McDowell
Remedial Project Manager
Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Dear Mr. McDowell:

The Department of the Interior (Department) has reviewed the Proposed Plan (PP), dated June 2000, for the Crater Resources, Inc./Keystone Coke/Alan Wood Steel Co. Superfund Site (Site) in Upper Merion Township, Montgomery County, Pennsylvania. Please give careful consideration to these comments in preparing the draft Record of Decision.

The Site contains many different fish and wildlife habitats, including a patchy distribution of mature and successional forest, old field, and mixed uplands, as well as some isolated wetlands, wet swales, and open water habitat, all within a larger developed area. Because of the habitat diversity, numerous species of wildlife (including many migratory birds) are attracted to and use the Site for feeding, resting and/or nesting. The aquatic habitats within the Site are attractive in particular to certain water-oriented bird and mammal species. Unfortunately, the absence of normally-to-be-expected fishes and other vertebrate aquatic species in the quarry ponds are indicative that these habitats and indigenous fauna may have been exposed to toxic releases of Site-related contaminants. If so, any remaining contamination may also pose a continuing risk to wildlife that use the ponds.

The EPA Region III Biological Technical Assistance Group (BTAG), which includes representation by the Department's U.S. Fish and Wildlife Service, twice expressed concern about the ecological risk assessment during review of the Remedial Investigation/Feasibility Study (RI/FS) (see enclosed copies of July 30, 1998 and December 9, 1998 correspondence). The BTAG again reiterated its concern in a review of the Draft PP (see enclosed copy of June 19, 2000 correspondence). In brief, despite the presence of ecologically attractive habitats on Site and against the recommendations of the BTAG, EPA accepted minimal evaluation of ecological risk - a screening level ecological risk assessment which concluded that ecological receptors *may* be at risk. The BTAG, *and now this Department*, contend: (1) site-specific risk evaluation should have occurred given the mix and diversity of occupied and unoccupied fish and wildlife habitats within the Site; and, (2) had this happened, ecological considerations, e.g., site-specific risk assessment results and possibly ecological based clean-up criteria, would have been presented in the PP to conclusively determine ecological risk and to provide any appropriate measures for environmental protection. Unfortunately, the PP and preferred remedy are largely based on risk

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to human health and *may not provide adequate protection to ecological receptors*, including natural resources held in trust by the Department.

Based upon our review of the PP and supporting documentation for this site, we conclude that primary deficiencies in the PP are: (1) the lack of identified ecological risk-based clean-up criteria and determination of where they will be applied; (2) lack of fill and cover depth requirements; (3) no clear definition of the term "affected area"; (4) no acknowledgment and mitigation of wetland impacts; and, (5) no consideration of replacing the upland habitat that will be affected by the remedy.

In view of the above, the Department makes the following recommendations to ensure that ecological resources and their habitats are adequately considered and protected by the preferred alternative. We view these recommendations necessary to conclude that the preferred alternative is protective of the environment and our trust resources.

1. EPA should identify and mandate use of ecologically relevant and protective sediment/soil clean-up criteria in all areas requiring sediment/soil excavation (i.e., Quarry 3 and WAL pipeline corridor).
2. EPA should clearly define the term "affected areas" in the PP and ROD. Our recommended definition would be all of the areas within the physical boundaries of Quarries 1, 2, and 4, as well as the drainage swales where sediment samples exceeded ecological criteria (SS#1, SS#2, and SS#3).
3. EPA should identify all wetland impacts resulting from the proposed remedy, and include wetlands regulations as location-specific ARARs. Our review of site documents indicates that at least 2.5 acres of wetlands are present on the site. Wetlands will be affected by remedial actions in Quarry 3, Quarry 4, along the WAL pipeline corridor, and in the drainage swale between Quarries 3 and 4. Compensatory mitigation must be provided for all wetland impacts at commonly applied replacement ratios.
4. EPA should identify the soil depth requirement for the fill and cap. The soil cover cap should contain at least two feet of clean soil or some additional physically confining layer to prevent exposure within the biologically active zone.
5. EPA should identify all terrestrial habitat impacts and adequately replace the ecological value thereof. Our review of the PP indicates that approximately 12 acres of upland habitat, including significant acreage of mature mixed deciduous forest, will be destroyed in completing the remedy. At a minimum, all capped areas should be graded and seeded to a native grassland habitat.
6. EPA should review sampling results from the Area 5, Area 6, and former WAL pipeline soil removal actions. Application of the criteria established in (1) above should be applied to these areas, and any areas exceeding such clean-up criteria should be capped.

In summary, the Department finds that the PP insufficiently addresses EPA's responsibility to protect the environment. Full consideration of the above comments should result in acceptable protective measures to be included in the Record of Decision. Towards that end, we request the opportunity to review and provide the EPA with comment on the draft Record of Decision.

The Department appreciates the opportunity to provide these comments. If you require additional information or feel that I can be of further assistance in this matter, please contact me at (215) 597-5378.

Sincerely,



Michael Chezik
Regional Environmental Officer

Enclosures(3)

cc:w/o attachments

D. Rosenberger, NRTRT, OEPC, WASO

T. Conte, DOI, Newton Corner, MA

M. Parker, FWS, Hadley, MA

R. Heubel, FWS, Hadley, MA

D. Densmore, FWS, State College, PA

B. Pluta, EPA III, Philadelphia, PA

E. Johnson, EPA III, Philadelphia, PA

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recommended in the future at the Crater Resources Site. Assessment endpoints must be developed based on the COPCs and site-specific details. The BTAG does not agree with the assessment endpoints provided in the document. Receptor species and literature values must also be selected and agreed upon.

1. Terrestrial sites

All sites that exceed soil screening levels should be evaluated with food chain modeling to quantify effects to avian and mammalian indicator species. Such terrestrial indicator species should be selected to represent various trophic levels. The BTAG must approve the indicator species and models parameters, prior to use with site data. Toxicity and bioaccumulation tests may also be recommended.

2. Sites involving wetlands, ponds, and drainage ditches

The BTAG may recommend any or all of the following for those ponds, drainages and wetland areas that are found to exceed screening levels:

Sediment toxicity bioassays can be performed in each of the delineated wetlands areas, areas of standing water, and the primary surface water draining and runoff receiving areas of the site. Potential locations would include Ponds 1, 2, and 3, the plateau wetlands area, any additional wetlands delineated on the site, Matsunk Creek, and defined groundwater discharge areas. Bioassays must be completed with two separate organisms and accompanied with full sediment and surface water analyses. Endpoints may include survival, growth, reproduction, and/or bioaccumulation.

Fish and benthic invertebrate communities in Matsunk Creek may need to be characterized by utilizing EPA's Rapid Bioassessment Procedure. Obviously, since groundwater may discharge contaminants at this area, representative stations must be located up and downstream of the Creek to determine if any effects are from site related contaminants. Fish samples representing two separate trophic levels may also need to be collected and whole body samples be submitted for metals analysis and gross histopathology.

These site-specific data would serve three purposes: 1) the sediment toxicity tests will determine the potential for acute and/or chronic effects to aquatic resources in any of the wetlands and receiving water bodies; 2) the benthic invertebrate community assessments may be used to field validate the above and serve to identify any contaminant-related effects in the nearest lotic environment; and 3) the residue chemistry in fish, water, and sediments would be used to evaluate bioaccumulation potential and be used to quantify exposure in higher tier risk modeling to wetlands-based indicator species (piscivorous birds and mammals).

Thank you for the opportunity to provide these comments. The BTAG requests that you continue close coordination with ecological issues at this site. If you have any questions or want to discuss any of these comments, please contact me at any time.

The BTAG was hopeful that after the site visit conducted on September 17, 1998, the PRP group and their consultants would be convinced that the site contained valuable habitat and that they would at least agree that the potential for ecological receptor exposure was significant. The response to comments has recognized this site as having terrestrial habitat value, although the aquatic and mesic habitat value of the Quarry 3 Area is again trivialized. Although the wetlands found onsite are limited in size, and the open water areas are small in comparison to the size of the entire site, these areas still represent habitat value, and exposure to receptor species occurs regularly. This should be evident from the numerous passerine species seen utilizing these areas during the site visit. Evidence of use by waterfowl and various mammalian species was also noted during the site visit and had been previously documented. There has been no attempt to identify what aquatic resources may be found in these ponds, and more importantly if not found, answers as to why they do not support aquatic receptors. Nearby ponds associated with the golf course and Matsunk Creek were observed to have abundant aquatic life. There should be little doubt that various contaminants are potentially responsible for the lack of true aquatic receptors found in Quarry 3. Furthermore, to what degree these contaminants may be affecting the myriad of birds and mammals that feed, drink, bathe, and rest on and near these ponds is not even acknowledged as a data gap. The intent of an ecological risk assessment in the Superfund process is to quantify the level of risk posed by site-related contamination and to use that information in selecting a remedy that will manage or eliminate those risks. Each and every remedy selected must be protective of human health and the environment. One should not proceed to the Feasibility Study and evaluate remedial alternatives without ever considering the degree of environmental risk presented by site contaminants. This brings us to the second major disagreement, whether or not additional assessment is needed.

It should be clear that the BTAG strongly recommends further ecological assessment work at this site. In fact, we have no idea how you will conclude that the selected remedy is protective of the environment if there is no assessment to determine if, and to what degree, site contaminants pose risk to the species utilizing the site. The issue of requesting additional terrestrial investigations in areas that are proposed to be developed sometime in the future is a difficult one. Obviously, determination of where the development "line" will encroach on the site and the development schedule are important considerations. If terrestrial areas will remain intact with site contaminants in excess of screening benchmarks, these areas would need to be further evaluated. Unlike the terrestrial issue, the ponds and wetlands onsite will not be developed. These areas should be the focus of the additional ecological work. How will you determine if the ponds need to be dewatered and excavated? Will all three ponds require excavation? If they are excavated, how far will the excavation go into the wetlands area? Should the ponds be backfilled with soil or will the water that naturally refills them be able to support aquatic life? How will you know that if left as they are, the ponds will not serve to impair every receptor that chooses to inhabit this area? These are the basic data gaps that need to be answered with further assessment.

Finally, we will provide your our recommendations for further assessment work. A few basic ecological assessments are imperative to this site and should have already been conducted: a wetlands delineation; and, a determination of what aquatic receptors are contained in the ponds and wetlands. Sediment and surface water bioassays should be conducted to determine if the ponds and wetlands are acutely or chronically toxic to aquatic organisms. Food chain modeling should be performed to determine what degree the terrestrial and wetland dwelling birds and mammals are at risk from exposure to site-related contamination. The BTAG will not go into specific detail on these assessments until there is a commitment that they will be performed.

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Thank you for the opportunity to provide these comments. The BTAG requests that you continue close coordination with ecological issues at this site. If you have any questions or want to discuss any of these comments, please contact me at any time.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

June 19, 2000

SUBJECT: March 31, 2000 Screening Ecological Risk Assessment (SERA) and June 2000 Proposed Remedial Action Plan (PRAP) Draft Site Management Plan; Crater Resources, Upper Merion Township, Pennsylvania

FROM: Bruce R. Pluta, Coordinator ^{BP}
Biological Technical Assistance Group

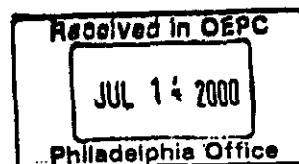
TO: Andrea Lord (3HS21)
Eastern Pennsylvania Remedial Section

Representatives of the BTAG have reviewed the subject documents and offer the comments presented below. Given the abbreviated review timeframe, only a cursory review of these documents was performed. These comments focus on the incompleteness of the SERA, the complete lack of ecological considerations in the PRAP, and need for clearly defined remediation criteria and locations. It should be noted that many of these same concerns and the PRP's failure to address ecological resources have been identified in earlier BTAG memos dating several years.

SERA

The SERA is limited to the screening of maximum concentrations against ecologically-protective criteria (Step 1). This comparison results in maximum ecological effects quotients (EEQs) ranging from 1.68 to 2,090 for nine inorganic COCs. Greater than 96% of the detectable inorganic contaminants have EEQs greater than 1. PAH EEQs range from 328 to 284,000 with 100% of the detectable contaminants having EEQs greater than 1. Thus, COCs are ubiquitously high and should be evaluated via food chain modeling under EPA ecological risk assessment guidance.

However, no food chain modeling was performed despite the presence of bioaccumulative COCs and the known presence of receptors. Instead, the document attributes the limited occurrence of wildlife species to poor habitat quality. The SERA fails to consider the high probability that the presence of wildlife at the site has been influenced by the contamination of the soil, water, and sediments. This erroneous dismissal obviates the need for the PRP to calculate ecological risk based clean-up levels.



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PRAP Ecological Considerations

The PRAP is driven solely by human protection with no consideration given to remediation objectives to protect ecological resources. The SUMMARY OF ALTERNATIVES describes sources of the preliminary remediation goals, none of which are ecologically based. The PRAP should describe the ecological objectives and criteria for environmental protection.

The preferred alternative states that soil and sediment in Quarry 3 will be remediated "to the level where contaminant concentrations ... are below risk-based concentrations." These human risk-based concentrations (Table 2-1, FS) are far less stringent than those needed to protect ecological resources. For example, the total PAH concentration goal for sediments in Quarry 3 is 204,285 ppm in contrast to Oak Ridge National Laboratory's (Efroymson et al. 1977) preliminary remediation goal for aquatic resources of 13.66 ppm (15,000-fold less). The human risk-based surface soil remediation goal for mercury is 0.7 ppm compared to 0.00051 ppm for protection of worm-eating birds (Efroymson et al. 1977). The failure of the PRPs to apply ecological criteria results in the inability of any the described alternatives to achieve environmental protection, a threshold criteria for evaluation of remedial action plans.

The PRAP also states the "all soil alternatives may need to meet location-specific ARARs with regard to possible disturbance of wetland areas." As federal regulations and executive orders call for no net wetland loss, the alternatives must meet these requirements. For any wetlands impacted during the remediation process, suitable mitigation must be undertaken.

Remediation Criteria and Locations

It states under Alternative S-4 that "all affected soils would be tested to determine whether or not they exhibit hazardous characteristics in accordance with the Resource Conservation and Recovery Act (RCRA)." This approach raises two serious concerns. The standards for RCRA removal actions should not be applied for this CERCLA site as site-specific, human risk-based criteria have been developed. Secondly, taking additional samples prior to implementing the cap is not necessary as the area to be capped can be fully delineated based on RI/FS analytical data and physical characteristics of the quarries.

The PRAP states that other "affected" areas will be capped. It fails to define "affected" as those locations exceeding the human-based risk criteria or by location name (e.g, drainage swale east of Quarry 3). Thus, it is impossible to discern the extent of remediation from the information provided. The text should be revised to convey that all areas other than Quarry 3 that exceed risk-based criteria (human or ecological) will be capped according to RCRA standards for landfill cap designs.

Please feel free to contact me at (215) 814-2380 or Kathy Patnode at (814) 234-4090 x227 if you have any questions.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

SUBJECT: Crater Resources Site Remedial Investigation Report

DATE: 7/30/98

FROM: Barbara Okorn, ³⁸⁰Coordinator
Biological Technical Assistance Group (BTAG)

TO: Andrea Lord, RPM (3HS21)
Eastern Pa Remedial Section

FWS and EPA members have reviewed the subject document and offer the following comments for your use.

The BTAG has reviewed the document, with particular emphasis on the ecological risk assessment (ERA) section. Although current BTAG members have not visited the site, it is evident from past BTAG recommendations and correspondence that the site contains excellent habitat value and the exposure potential for a variety of receptor organisms is much greater than described in this document. This RI characterization is particularly distressing since previous BTAG correspondence clearly indicated the unique ecological value of this area and offered detailed recommendations regarding the ecological assessment needed at this site. Statements such as found on page 4-12, "Therefore, these areas (ponds in Quarry 3) are less likely to attract ecological receptors and subsequent exposure of potential receptors to CPOCs in sediment and surface water are not expected," are not supportable. There are several statements that "no permanent aquatic habitat" or "no true aquatic habitat" exists at this site, which is at least misleading, if not inaccurate. The BTAG can not accept such statements, as the Quarry area contains standing water year-round and the plateau area supports a diverse wetland plant community. During a previous BTAG site visit (December 1994), mallards and Canada geese were observed on the ponds, and many passerine species were observed. Additionally, the golf course setting directly to the south likely serves as an attractant to avian species, and coupled with the site's diverse cover types, the entire area provides excellent avian habitat.

Additional concerns relate to the site's ecological value being seemingly diminished because of the habitat fragmentation and isolation. Statements indicate that because of this fragmentation and isolation within a developed area, the site limits recruitment, abundance and distribution of wildlife species. This reasoning is opposite of tested and accepted wildlife management theory. Habitat fragmentation and isolation at this site have resulted in many different cover types and a patchy distribution of forest, old field, and mixed uplands, as well as some isolated wetlands and open water habitat, all within a larger developed area. Ecologically, habitat fragmentation and isolation generally result in phenomena referred to as the "edge effect" and "island effect," both of which may promote local wildlife utilization and thus increase abundance, diversity, and

recruitment of wildlife species. The "edge effect" promotes ecological diversity regardless of the setting. The "island effect" will result in a robust and diverse ecosystem as long as suitable habitat exists, and if immigration and emigration routes remain open; both of which are true for this site. Additionally, simply because the site represents one of a few remaining undeveloped areas within a larger developed area the wildlife value is enhanced. The existing diverse wildlife habitat found on this site combined with the isolated nature and existing corridors of travel (Atlantic flyway, Schuylkill River and various land access avenues like railroad tracks and trails) are the very reasons this site is important from an ecological standpoint. Therefore, exposure pathways are complete, and the variety of wildlife inhabiting this site can and will be exposed to site-related contaminants.

All of that being said, the ecological screening levels used and results presented in Tables 17 (sediments) and Table 21 (soils) are acceptable. These tables correctly identify many CPOCs that may be considered as potentially impacting site biota. The surface water data presented in Table 20 was mostly for dissolved metals. For ERA purposes, total metals must be used since organisms are exposed to everything in water column. Since total metals were also analyzed in water samples, comparisons to screening levels in Table 18 must be with total metals and the list of surface water CPOCs in Table 20 must be revised accordingly. The bottom line is that the screening has identified many CPOCs in soil, surface water, and sediments that can pose a significant risk to site biota. Therefore, additional ecological evaluation is warranted to further define the level of adverse effect that may be occurring.

Since the Quarry ponds and soils have a significant level of contamination and will presumably undergo some level of remediation for the protection of human health, we would like to discuss your initial thoughts on this matter. Obviously, we would not want to propose additional ecological work in such a grossly contaminated setting (ponds) if it is a foregone conclusion that they will be excavated and capped. We realize that any such conclusions are premature at this time; however, we want to be realistic and pragmatic with our recommendations. In addition, particularly since the ponds and quarry soils were so grossly contaminated, we have concerns related to potential migration of contaminants from these grossly contaminated areas via surface and groundwater discharge (both historically and currently). Therefore, we are initially recommending additional sediment and surface water sampling in all defined drainage ways, wetlands, and Matsunk Creek; however, that sampling should be conducted at the same time of any site-specific ecological work that is decided upon. Additionally, we note that groundwater flow is directly east towards the Schuylkill River, and additional work should be conducted to determine if seeps or discharge to the surface is evident.

The following have been determined necessary to further define site risks and to assist in selecting a remedy that will be protective of the environment.

Recommendations

- Revise the existing RI to accurately reflect the exposure potential for the site's wildlife. There should be no doubt with the 40+ identified CPOCs and the documented wildlife utilization at this site, that there is significant potential for adverse effects.

- Reevaluate the site surface water data using total metals and revise the surface water CPOC list.
- Set up a site visit for all reviewing BTAG members
- Conduct wetlands delineation for the site and its major drainage ways
- Plan for additional extent of contamination work. The RI ecological screening assessment was based on limited data (three pond sediment samples and one surface water sample for each of three ponds). Results indicated extensive contamination, particularly with phenols, PAHs, cyanide, arsenic, mercury, selenium and zinc. Conspicuously lacking were sampling sites needed to assess the transport potential to the east and southeast of the site. The one sediment drainage sample collected between Quarries 3 and 4 (SS#3) did show a moderate level of total PAHs (>50 ppm), which is not surprising considering the maximum total PAH concentration in Pond # 1 sediments was > 50,000 ppm. All surface wetlands and drainage ditches should be sampled. Groundwater discharge areas should be defined and sediments and surface water sampled appropriately.
- Plan for some level of site-specific ecological work. Depending what our initial conversations reveal, there will likely be some level of additional work needed to elucidate what areas, if any, may require remediation for the protection of ecological health. The ERA should be modified based on these comments and follow EPA's guidance (Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, 1997).
- We recommend that the appropriate state and federal agencies be contacted, annually at a minimum, regarding threatened and endangered species. Page 4-9 states that the documentation is in Appendix B. In my copy of the report, Appendix B only has the Offsite Well Inventory. The bog turtle status has recently changed in PA. The agencies should be contacted again and the documentation must be provided.
- Page 4-9- The Historical and Archaeological Resources section is not relevant to the ERA and should be moved to another part of the document.
- Page 4-11 states that "the magnitude of the EEQs will be considered in the Risk Characterization portion of the ERA". This should be removed since any EEQ greater than one is a potential risk. This should also be corrected in other sections of the text. Magnitude of the EEQ does not account for the mechanism of toxicity of the COPC and there is no site specific information to indicate otherwise.

Type of Additional Work that May be Needed

For your information, the BTAG lists the type of additional site-specific work that may be

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recommended in the future at the Crater Resources Site. Assessment endpoints must be developed based on the COPCs and site-specific details. The BTAG does not agree with the assessment endpoints provided in the document. Receptor species and literature values must also be selected and agreed upon.

1. Terrestrial sites

All sites that exceed soil screening levels should be evaluated with food chain modeling to quantify effects to avian and mammalian indicator species. Such terrestrial indicator species should be selected to represent various trophic levels. The BTAG must approve the indicator species and models parameters, prior to use with site data. Toxicity and bioaccumulation tests may also be recommended.

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These site-specific data would serve three purposes: 1) the sediment toxicity tests will determine the potential for acute and/or chronic effects to aquatic resources in any of the wetlands and receiving water bodies; 2) the benthic invertebrate community assessments may be used to field validate the above and serve to identify any contaminant-related effects in the nearest lotic environment; and 3) the residue chemistry in fish, water, and sediments would be used to evaluate bioaccumulation potential and be used to quantify exposure in higher tier risk modeling to wetlands-based indicator species (piscivorous birds and mammals).

Thank you for the opportunity to provide these comments. The BTAG requests that you continue close coordination with ecological issues at this site. If you have any questions or want to discuss any of these comments, please contact me at any time.

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